REMARKS/ARGUMENTS

Reexamination and reconsideration of the application are respectfully requested. It is not the Applicants' intent to surrender any equivalents based on the amendments or arguments presented herein. It is believed that no new matter is involved in the amendments or arguments presented herein.

The Applicants thank the Examiner for the telephone interview on July 24, 2003. As discussed, the proposed amendments and arguments are presented in this response.

Specification

The disclosure was objected to because of informalities. The Applicants thank the Examiner for the thorough examination of the application. Applicants have corrected the informalities and respectfully request the objection be withdrawn.

As for paragraph [043], the special character "√" (square root) might have not printed on the application due to a printer error in printing special characters. If that is the case, please insert "√" into the specification, as indicated.

Claims

Claims 1-9, 11-15, 17-24, and 81-89 are pending in this application. Claims 25-30 have been canceled without prejudice. In view of the Examiner's restriction requirements, claims 10 and 16 (currently) and claims 31-80 (previously) have been withdrawn with traverse.

Claims 1, 5-8, 18, 21, 23, 81 and 83 have been amended without adding any new matter. As for claims 1, 21 and 23, the support for the added language can be found in the specification, for example, in Figs. 4(a) and 4(b) and paragraph 39. Dependent claims 5, 7, 8 and 18 have been amended without narrowing the scope, without affecting patentability and without adding new matter. The amendment to dependent claim 6 is supported by, for example, original claim 79. As for claim 81, the added language is supported by the originally filed application and/or was implied by the original language. For instance, the language circuit die package is supported by the specification, for example, in paragraphs 8, 12, 16, 36, 44, 47, etc. The language coaxial connectors and connectors for low speed signals are supported by the specification, for example, in paragraph 36. The original language "throughout" covers substantially the entire region from

the microstrips to the coaxial connectors, and therefore impliedly covers any transition region between the microstrips and the coaxial connectors. The transition region is also supported by the specification, for example, in paragraphs 8 and 37 and claim 17. Without surrendering any equivalents, according to one embodiment, substantially constant characteristic impedance can be established in the transition region by matching the width of a dielectric ring portion of the coaxial terminals to the thickness of the substrate. (See, e.g., paragraph 37) Also, the diameter of the coaxial terminals can be made to match the width of the microstrip. (See, e.g., paragraph 8). Claim 81 is also supported by the original claim 79. It is not the Applicants' intent to surrender any equivalents based on the amendments or remarks made in connection with claims 1, 5-8, 18, 21, 23, 81 and 83.

New claims 84-89 are added without adding any new matter. Claims 84-89 are supported by the original claims 1, 6, 12, and 79 and the specification (see, for example, paragraphs 8, 10, 12, 16, 36, 40, 44, 47, Table 1, and Figure 11).

Non-Art Based Rejections

Claim 30 was objected to because of informalities. Claim 30 has been canceled, and the Applicants respectfully request the objection be withdrawn.

Claims 21-22 and 28 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. As for claims 21 and 22, per the Examiner's suggestion, the Applicants deleted the recited "means for providing transmission paths." The Applicants submit that claims 21-22, as amended, fully comply with 35 U.S.C. 112, second paragraph. Claim 28 has been canceled.

Art-Based Rejections

Claims 1-9, 11-15, 17-30 and 81-83 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fig. 1 in view of James et al. (USPN 6,518,663). The Applicants respectfully traverse the rejections and submit that the claims are patentable in light of the clarifying amendments and arguments made herein.

The claims were rejected based on Fig. 1 of the present application, including the disclosure provided in the background section of the application, in view of James et al. The Applicants respectfully submit that the background section of the present application discloses

not only prior art information but also the Applicants' own teachings for selecting and combining certain prior art information and the motivation and desirability of the invention. Accordingly, it would be improper to use the Applicants' own teachings in the background section of the present application as prior art or as the motivation to combine Fig. 1 and James et al. Furthermore, James et al. does not suggest or teach any motivation to combine its disclosure with Fig. 1. Even if it does, when Fig. 1 and James et al. are combined, the combination does not suggest or teach the invention, as described below.

As for independent claims 1, 21 and 23, neither Fig. 1 nor James et al. suggests or teaches (i) providing a virtual ground between the microstrips and (ii) calculating a capacitance value of one of the microstrips based on the distance between the virtual ground and the microstrip while (iii) maintaining substantially constant characteristic impedance throughout substantially the entire length of the microstrips. Fig. 1 does not provide such information. James et al. does not disclose a virtual ground or a capacitance value calculated based on the distance between the virtual ground and a signal line. If James et al.'s teaching is used to determine the geometry of the signal lines, the resulting mutual capacitance will be too large (e.g., the mutual capacitance per unit length will be off by a factor of 2), and the corresponding impedance will be too small. Hence, James et al.'s signal lines will not provide constant characteristic impedance. Accordingly, neither Fig. 1 nor James et al. suggests or teaches the claimed limitations; in fact, the result is completely different from the claimed limitations.

As for independent claim 81, neither Fig. 1 nor James et al. suggests or teaches a circuit die package substrate (i.e., a substrate for a circuit die package) (i) that includes both a plurality of coaxial terminals and a plurality of non-coaxial terminals, (ii) that can provide substantially constant characteristic impedance throughout substantially the pair of microstrips and the plurality of coaxial terminals, including substantially the transition region from the pair of microstrips to the plurality of coaxial terminals, and (iii) that has the pair of microstrips connected to coaxial terminals for carrying high-speed signals at a rate not less than 1 Gbps and microstrips for carrying low-speed signals.

A bare circuit die is packaged into a small circuit die package, which is then placed onto a larger printed circuit board. The claimed connection package is related to a circuit die package.

Prior to the invention, a substrate for a circuit die package having high-density signal pads included only non-coaxial terminals (e.g., metal traces), and wire bonding was used to connect the non-coaxial terminals on the circuit die package to the metal traces on the printed circuit board. Such a structure suffered from impedance discontinuity at the transition between the circuit die package and the printed circuit board.

In the present invention, the substrate for a circuit die package includes not only non-coaxial terminals but also coaxial terminals. This has not been done previously. A circuit die package is a very small package compared to, for example, a printed circuit board. Providing different types of connectors to a small circuit die package (especially for a circuit die package having high-density signal pads) was not obvious. In addition, the circuit die package of the invention can provide substantially constant characteristic impedance throughout substantially the microstrips and the coaxial terminals, including the transition region between the microstrips and the coaxial terminals. This has not been done previously. Furthermore, the circuit die package of the invention can provide high-speed signals at a rate not less than 1Gbps in combination with low-speed signals. This has not been done previously.

As for independent claim 84, neither Fig. 1 nor James et al. suggests or teaches a circuit die package substrate having (i) a spacing between the microstrips not less than about one half of the thickness of the substrate while (ii) the microstrips maintain substantially constant characteristic impedance. Fig. 1 does not disclose how to calculate the spacing between the signal lines. If James et al.'s teaching is used to determine the spacing between the signal lines, its spacing may be about one quarter of the thickness of the substrate. Accordingly, the mutual capacitance per unit length will be too large (e.g., by a factor of 2), and the impedance will be too small. Hence, James et al.'s signal lines will not provide constant characteristic impedance.

Thus, it is submitted that independent claims 1, 21, 23, 81 and 84 are patentable over the cited references. Remaining dependent claims 2-9, 11-15, 17-20, 22, 24, 82-83 and 85-89 are also patentable over the cited references, not only because they contain all of the limitations of the applicable independent claims, but because the dependent claims also describe additional novel elements and features that are not described in the prior art.

Conclusion

It is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe that there are matters relating to this application remaining that can be resolved in a telephone interview, the Examiner is urged to call the Applicants' undersigned attorney.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

HOGAN & HARTSON L.L.P.

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By: _____

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